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Birds

*Ad Burder*

PART 1.

FEBRUARY, 1907.

THE  
**BRITISH WARBLERS**  
A HISTORY WITH PROBLEMS  
OF  
THEIR LIVES

BY

H. ELIOT HOWARD, F.Z.S., M.B.O.U.

ILLUSTRATED BY HENRIK GRÖNVOLD

London

R. H. PORTER

7, PRINCES STREET, CAVENDISH SQUARE, W.

Price 21s. net.











H. GRÖNVOLD PINXT.

EGGS OF BRITISH WARBLERS, PL. I.

LITHO. W. GREVE, BERLIN.

1-6 AQUATIC-W. 7-12 SEDGE-W. 13-18 REED-W. 19-24 MARSH-W.  
25-34 GREAT REED-WARBLER.

PUBLISHED BY R. R. PORTER.

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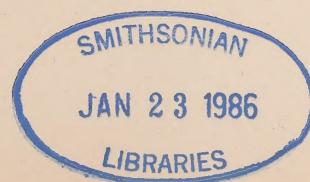
BY

H.<sup>enry</sup> ELIOT HOWARD, F.Z.S., M.B.O.U.

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„ „ „ ♂ „

„ „ „ ♂ „

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Showing approximate Geographical Distribution of Grasshopper-  
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SEDEGEAVER

ADULT MALE

## SEDGE-WARBLER.

**Sylvia phragmitis**, Meyer, *British Birds*, folio Ed., vol. i. (coloured plate figuring adult and egg) [1835-43].

**Salicaria phragmitis**, Hewitson, *British Oology*, 1st Ed., vol. i, pl. 70, fig. 2 (egg) [1836]; *id.*, *Eggs of British Birds*, 2nd Ed., vol. i, p. 87, pl. 25, fig. 2 (egg), 1846; *id. id.*, 3rd Ed., vol. i, pp. 117-118, pl. 31, fig. 3 (egg), 1856; Booth, *Rough Notes*, vol. ii, pp. 43-44, 1883.

**Calamoherpe phragmitis**, Macgillivray, *British Birds*, vol. ii, pp. 390-394 (woodcut of head), 1839.

**Calamodyta phragmitis**, Gould, *Birds of Great Britain*, vol. ii, 2 pp, pl. 75 (coloured figures of adult male and female), 1862.

**Acrocephalus schœnobænus**, Yarrell, *British Birds*, 4th Ed., vol. i, edited by Newton, pp. 376-379 (woodcut), 1873; Dresser, *Birds of Europe*, vol. ii, pp. 597-601, pl. 90, fig. 2 (coloured figure of adult male), 1876.

**Acrocephalus phragmitis**, Seeborn, *British Birds*, vol. i, pp. 352-356, pl. 10, fig. 17 (egg), 1883; Lilford, *Coloured Figures*, vol. iii, p. 40, pl. 20 (coloured figure of adult male), 1886; Saunders, *Manual of British Birds*, 2nd Ed., pp. 85-86 (woodcut), 1898.

Arabian, *Fisseu*; Croatian, *Vodarisa rogočara*; Czechisch, *Mysak*; Danish, *Sivsanger*; Dutch, *Rietzanger*; Finnish, *Ruohokerttu*; French, *Bec-fin phragmite*; German, *Schilf-Rohrsänger*; Hungarian, *Foltos sitke*; Italian, *Forapaglie*; Maltese, *Violin*; Norwegian, *Sivsanger*; Polish, *Trzcinia rokit-niczka*; Russian, *Kamyschefka kamyschewaja*; Spanish, *Buscarla*; Swedish, *Säfsångare*.

### DESCRIPTION OF THE PLUMAGE.

**Adults in Spring.**—The sexes are alike, the male, perhaps, being a trifle brighter and rather larger, but on the other hand a bright female may surpass a dull-coloured male. The upper parts are of an umber brown tint shading into an almost unspotted rusty brown on the rump and upper tail-coverts. There is a conspicuous buffish white superciliary stripe and above that an equally conspicuous blackish stripe; the feathers in the middle part of the crown

have dark centres forming three longitudinal stripes, the lores are blackish brown, cheeks brown, and the upper parts of the ear coverts slightly more dusky, these latter forming with the lores a darkish stripe through the eye. The hinder part of the neck is almost unspotted, whereas on the back and shoulders each feather has a blackish brown centre forming about six stripes on the back. The wing-coverts are blackish brown with umber brown edges to each feather, the flight-feathers are brown with slightly lighter edges, the innermost secondaries having blackish brown centres and light umber brown edges, the primaries having narrow whitish brown tips. The upper part of the tail is dark umber brown with lighter edges of the same tint, both colours getting lighter towards the outermost rectrices. The throat is whitish, the crop and sides of the neck buff shading into umber buff on the flanks and under tail-coverts. Abdomen whitish, and the under part of the tail greyish brown with a wash of lavender grey.

**Immature.**—The colour of the young is much like that of the adults, but richer. The crown is blackish, each feather narrowly edged with olive buff, the combined effect being, when the feathers are in perfect order, that of six fairly broad blackish stripes divided by narrow olive buff lines. There is a conspicuous light buff superciliary stripe, the lores are blackish, uppermost ear-coverts dusky, the combined effect being a dark streak through the eye; on the nape the blackish centre and olive buff edges of the feathers are of equal strength; on the back and shoulders the blackish centres are most conspicuous, forming about six fairly well defined longitudinal stripes; on the rump and upper tail-coverts the olive buff becomes slightly rusty or richer olive buff and the dark centres to the feathers are less conspicuous. The upper part of the tail is brownish slate, each feather edged with olive buff slightly lighter on the outermost ones, the shafts being dark lavender brown. The wings are darkish brown slate, each feather boldly edged with olive buff, narrower on

#### SEDGE-WARBLER

the small coverts, and forming a sort of dark band across the wing, almost hiding the dark centres on the upper wing, making this part look uniform in colour. The sides of the face and neck are rather rich olive-buff with faint dark centres to the feathers, and there is a moustache stripe, though not very conspicuous. The throat is pure whitish buff; the crop and flanks are buff, with or without a faint olive wash, the former being furnished with brownish grey spots. The abdomen is whitish, blending into a pure buff on the under tail-coverts; under surface of the tail and wings are lavender grey narrowly edged with light buff and the feather shafts are white. The upper mandible is dark horn lavender, lower mandible light lavender flesh, darker towards the tip, and the corner and inside of the mouth orange yellow. Irides dark brown, the small feathers above are light buff, those below white. The eyelid is dark lavender flesh. Tibia olive buff. Tarsus and toes fairly light greenish lead colour; soles yellowish olive, and the claws olive grey.

#### GEOGRAPHICAL DISTRIBUTION.

It is so generally distributed from the middle of April to September throughout the British Isles that it is not necessary to mention any particular locality: we find, however, that as we proceed further north it is rather more local, and does not apparently reach the Shetlands, although in the Orkneys it is by no means uncommon. In the north-west of Skye it is rare, but in the islands further south, Islay and Mull, more numerous. In Ireland it breeds in every county, and is even found on Achil Island.

Crossing the English Channel and commencing in the south-west, we find it rare in the south of Spain and in Portugal, but rather more numerous further north, especially near Aroza Bay. In the Pyrenees it is common, also in suitable places throughout France, Belgium, and the Nether-

BRITISH WARBLERS

lands, especially, in the latter countries, along the banks of the Rivers Scheldt and Meuse. I did not find it as common as I should have expected in the Island of Texel: it passes over Heligoland in great numbers.

Continuing northwards, we find it generally distributed throughout Denmark and breeding in suitable localities. In the south of Sweden it is common, then becomes rarer as far as the south of Norrland, but north of this it apparently does not occur: it is unknown in Gothland. In the south of Norway it is rare, but has been observed in the Jäderen district and up to Laurgaard; north of this it disappears until we reach Dynnäsö in the Helgeland district, where it becomes more common again and reaches as far north as Finmark.

Returning to Central Europe, we find it generally distributed over Germany and especially common in the marshy parts of Mecklenburg, Holstein and Westphalia; also in Hessen and along the banks of the Rivers Moselle and Elbe; rare, however, in Sachsen-Altenburg, but very common in Silesia. In Switzerland it is fairly numerous, especially in the low-lying country and valleys round Geneva and Lake Constance, but in the central and northern parts it is rarer, although inhabiting some of the lower sub-alpine valleys, especially Hasli. In Italy it is common in all the marshy parts, but not so numerous in Sardinia, and rare in Corsica. Eastwards, we find it again common in the Austro-Hungarian Monarchy, especially in the central plains along the banks of the Danube. Whether it breeds in Montenegro is doubtful, but immense numbers pass on migration. On the east side of the Balkan Peninsula we find it common in the reed-beds of Varna and Pravadia in Bulgaria, but further inland less numerous.

In Greece it is a bird of passage only, appearing on migration in large numbers from the end of March to the end of May. It may, however, have been overlooked as a

SEDGE-WARBLER

breeding species, since there are still extensive unexplored swamps in the country.

The Russian Empire is a large breeding ground. In Poland it is the most common of all the reed-warblers, and it is also numerous in the Baltic provinces. Crossing the Gulf of Finland, we find it common in suitable places in the provinces of Nyland and Tevastehus, in the neighbourhood of Åbo and Björneborg, near Lake Uleå, and on the Island of Carlö; and still further north breeding in the Kola Peninsula, but rare on the shores of Lake Enara. It occurs north-east of Lake Ladoga, in the province of Olonetz, on the banks of the River Svir and near Lake Onega. In the vicinity of Archangel it is numerous, and it also occurs in the valleys of the Petchora, Ob and Yenesei.

In the provinces of Pskov, St. Petersburg, Smolensk, Jaroslav and Kasan it is common, scarce in Novgorod, Tver and Riazan, and local in Moscow and Tula.

In the central valley of the Volga it is numerous, also in places in the Ural districts, but in the province of Orenburgh it is local, and rare in the Kirghiz Steppes, and again we find it numerous in Astrakhan and the delta of the Volga; and continuing south we find it occurring in Stavropol, Terek and Trans-Caucasia, and crossing the Caspian Sea inhabiting the Mangishlak Peninsula, Ust Urt plateau, and the valley of Amu Daria.

In Turkestan it is migratory and breeds, and we trace it eastward to the Altai Mountains.

In Palestine it is common in suitable places, also in many parts of Africa, breeding in Algeria, Tripoli, Tunis and Egypt.

The winter home is principally Central and Southern Africa, but it probably also remains in some of the countries bordering on the Mediterranean, since it has been found at this season in Dalmatia.

In Lower Egypt it is common, and has been found in Somaliland and on Lake Haramaia, and we also trace it to German East Africa and as far south as Damaraland.

## LIFE-HISTORY.

Arriving in this country about April 25th, these birds choose many varied spots for their home; osier-beds, where the various species of sedge grow in abundance, they favour most, although at times they will choose a thick and tangled hedge-row, and again, and this very frequently, they may be found amongst the dense masses of the *Arundo phragmitis*, but in the drier portions. The arrival of the males, and perhaps of the females also, is rather irregular; that is to say, a few will appear one morning, then there will be a pause, and a few days later another batch will arrive, and so on until the migration of the males ceases, about a fortnight after the arrival of the first individual.

Their arrival can soon be detected by their babbling song, an energetic but unmusical strain, and where first heard there they will probably be found to breed, for they are by nature most home-loving individuals.

Water or swampy ground seems to be a necessity for them, for they are rarely to be found breeding in dry places. I have occasionally come across them in small dry coppices, but never very far away from water of some description. They inhabit more particularly wet osier-beds, where the different sedges, the *Carex ovalis*, *Carex acuta* and *Carex riparia* grow abundantly, but they seem to prefer them when rather drier, that is to say, where the willows are young and thick, and where the *Juncus effusus*, *Spiraea ulmaria* (meadow sweet) and different species of *Epilobium* (willow herb) grow in tangled masses. Along the banks of rivers and streams they are often common, and are abundant on pools and lakes, where aquatic plants, such as *Scirpus lacustris* *Typha latifolia* (bulrush) and the tall reeds (*Arundo phragmitis*) grow. Where these reeds grow to a great height, as they do in Holland and Hungary, and where the bottom is a dry mass of roots raised above the water, there I have found them exceedingly common.



MALE BLUE-WING WARBLER.

ATTITUDE DURING COURTSHIP.



#### SEDGE-WARBLER

The males, when they first arrive, select a certain spot of not many square yards in extent, with a tall bush or willow conveniently situated; and, moreover, they not only choose a tree but some particular branch on that tree, and this, until the young are hatched, forms their headquarters. Before the female arrives, and also, but not as much, when paired, they sit on this particular branch and pour out their song, frequently accompanying it with a pretty aerial flight, rising almost perpendicularly for a short distance in the air, turning very quickly and returning, with wings and tail outspread, to the branch. After a short rest they either start their song afresh, begin to preen their feathers, or go in search of food, wandering over the branches of the various willows, examining the under parts of the leaves for flies of the genus *Chironomus*, and the twigs for aphides, working lower and lower down through the branches and thick herbage till they reach the ground, and here for a time they make their way in search of aquatic insects and small spiders, only shortly to return to their favourite branch, singing as they fly. Thus they while away the days till the females arrive. The ground immediately surrounding the tree they have chosen as their headquarters they look upon as particularly their own, and when two or three have chosen positions close to one another, there they will be found to search for their food in certain well-defined directions, being most careful not to poach on one another's preserves, and consequently most jealous of any intrusion on the part of their neighbours, and not, indeed, only of their neighbours, but also—and this I have seen so frequently as to place it beyond the bounds of chance—of any other warbler, chasing them determinedly away, while frequently—I have seen them pursuing Thrushes and Hedge-Sparrows—ignoring the presence of other species so far as to allow them to nest in their favourite tree. Such powers of apparent discrimination seem very wonderful, yet we must not forget our total ignorance of all things pertaining to the sub-conscious state of animal life, and

#### BRITISH WARBLERS

consequently of the bearing it may have on the unknown connection between different individuals, or classes of individuals, which, if known, would go far to explain such incidents, and perhaps enable us to form a truer definition of species than hitherto possible.

The courtship commences directly the females arrive, about ten days or so after the males; and as the females at this period persist in skulking in the bottom of the thickest rushes and undergrowth, it is most difficult to see what actually takes place; but the glimpses I have occasionally obtained tend to make me look upon the males when in love as rather sober-minded individuals; although the females for their part insist upon very close attention, and a somewhat servile attitude on the part of their suitors. A male pursues the female with drooping wings and erected head-feathers, uttering a rather harsh call-note; sometimes when quietly following he picks up and carries a dead leaf. If another male approaches too closely he pursues him with quick, vigorous flight. The female all the time keeps up her gentle call-note, which becomes more vigorous if her suitor, while pursuing another male, is forgetful and leaves her too long alone. Sometimes the two play together, flying at one another, the male scolding; and again they will sit close beside one another, an uninteresting couple, except when the male runs up and down the branch sideways, as he frequently does, with drooping wings and tail.

The nest, placed low down amongst the thick tangled undergrowth in the fork of a willow, or on the low branches of a bramble, especially when the latter entwines amongst a thick growth of *Juncus effusus*, is built up as follows: The foundation is dead grass of various kinds mixed with small pieces of dead thistle; on this is a thick layer of the fluffy seeds of the various species of *Salix*, bound together with fine dried grass, the lining being usually of the latter substance only. The female does most of the building, flying backwards and forwards to the *Salix nigricans*, carrying billfuls of the seeds,

#### SEDGE-WARBLER

followed closely by the male, who never makes the slightest effort to help her, but, whether she be on the willow tugging at the seeds or actually building, sits close beside her, and in the same manner flies within a few feet of her on her journeys backwards and forwards.

The young are hatched as a rule about the middle of June, but the date varies considerably ; I have found them as early as the first week of that month, and first broods as late as the first week in July. When the young are hatched the parent birds will allow you, if well concealed, to watch their domestic arrangements very closely. Peering through the sedges within a few feet of the nest, I have frequently watched them feeding their young, and cleaning their nest. The female at this time is less suspicious than the male. She it is who seems to be aware of the necessity of a constant supply of food to the nestlings ; the male in this respect not working nearly so hard, and when suspicious only occasionally, and that very hurriedly, bringing a small billful of insects : the greater part of his time appears to be spent in keeping guard. The female, on the other hand, feeds her brood continually, every few minutes coming to the nest with a large billful of insects, which she distributes amongst some of the young. When startled she will sing a few notes of the song of the male, but will on no account drop the food she may be holding at the time. I have startled her in many ways, even going so far as to touch her with a stick, in order to make her drop the insects that I might be able to see to what species they belonged, but in no case have I been successful. The fæces, enclosed in a membranous sac, is carried away by the female each time after bringing food, and is dropped twenty or thirty yards from the nest ; occasionally, but not as frequently as amongst other species, it is swallowed by her. The young leave the nest when about ten days old, and until able to fly keep well hidden amongst the undergrowth, occasionally uttering their very small call-note, which is answered by the parent birds, and enables them to keep in touch with their scattered offspring.

#### BRITISH WARBLERS

When fully grown the young ones are soon taught to find food for themselves. They follow their parents amongst the bushes and undergrowth, each being fed in turn, but occasionally taking the trouble to pick off a few aphides for themselves, giving one the impression that they prefer to be lazy as long as possible. Their difficulty no doubt lies in their want of experience, and consequent lack of power to distinguish between what is food and what is not; thus, even when they have left their parents, I have seen them in doubt trying to swallow the ragged ends of a broken twig. They are very playful at this age, their games sometimes taking the form of a tilting match. Three take part, two sit on convenient twigs facing one another, and the third from his central position might almost be called an umpire. Numbers one and two then lower their heads, each in anticipation of the other moving; one of them, call him number one, then springs into the air, and darts at number two; number two dodges and occupies the position vacated by number one, each of them then face round ready to continue the fray, the change of positions becoming quite rapid.

Although I have never found a second brood, yet I think it probable that two are sometimes reared, for this reason, that some of the males in July indulge in a second courtship. When a female is present the male will spread out his wings and tail, and walk sideways up and down a branch, the female for her part also spreading out her wings and tail, but not moving up and down the branch. After performing thus for a short time she will fly off, pursued by the male, calling to him with her low quiet note if he does not immediately follow. Sometimes two or three males join in the pursuit, apparently for the fun of the thing and the annoyance of the real lover.

It will be seen that this courtship is really identical with that performed in spring, and is therefore somewhat of a mystery, the more so as it is not indulged in by all males, for



MALE SILKY FLYCATCHER

MYIOPHOBUS PHOENICOMITRA



SEDGE-WARBLER

some at this period, after they have reared their young; begin to wander, and can be heard singing even in the middle of the cornfields.

Towards the middle of July, while watching them in osier-beds, where they happened to be very plentiful, I have noticed curious commotions, the origin of which I have not been able to satisfactorily explain. As many as eight or nine collect together, some adult, some immature, the adults apparently very angry, scolding vigorously, their feathers ruffled and their tails spread out; the onlookers also join in the scolding, the commotion being quite unusual for bird-life. So absorbed have they sometimes been that I have crept into the middle of them before they have noticed me, when they have reluctantly dispersed. I once found an empty nest from which the young may have been taken, but there were no dead bodies round it to show that a tragedy had occurred; and it is generally the case, when a rat or a weasel has attacked and destroyed the young, that the bodies lie round or perhaps even remain in the nest, with no sign of ill-usage on them except two small punctures at the junction of the head and neck, indicating the marks of the teeth, the blood having evidently been sucked. Hitherto, I have seen these scolding parties in July only, but it is quite likely that they may be of frequent occurrence at other times.

On his arrival in this country the male sings at all hours of the day, especially in the morning, frequently at night, and continues until pairing is over and incubation commenced, when to a great extent he ceases, but recommences after the young have flown. His song is loud, cheerful and babbling, sometimes harsh, and perhaps might be described as lacking education. He has also considerable powers of mimicry, the call-notes and parts of the song of different species being often introduced. This mimicry will be heard more frequently when any commotion is going on amongst the bird-life around, owing, no doubt, to the alarm-notes of the different species engaged in it being then more pronounced.

#### BRITISH WARBLERS

At such times I have heard them imitate the Whitethroat, Blackbird and Chaffinch, and at other times the Tree Pipit, while once I remember hearing one imitating the call-note of the Partridge perfectly. They can also, when singing, produce a ventriloquistic effect, but do not do so very frequently. The ordinary call-note used by both sexes is a rather harsh crackling note, difficult to describe; the female when mating has rather a different note to the male, and the young when fully grown differ again somewhat from both their parents.

The call-note—this is rather a vague term, in reality meaning very little—is used by both sexes all the summer, and when listening by the side of a reed-bed on hot summer afternoons it is frequently the only expression of bird-life one hears. Thus they keep calling, sometimes with the single note, sometimes with a treble note quickly uttered in a descending scale, as they wander along in search of food, apparently not troubling about an answer to their call, but uttering it mechanically at varying intervals. Any sudden noise or disturbance, even the throwing of a stone into the rushes, is often enough to cause them to sing.

In the latter part of August and the first half of September, that is to say, in the last few weeks before they leave this country, they are much quieter, rarely singing, but instead skulking in the undergrowth, and are therefore difficult to see. As they move about you can hear them occasionally calling to one another, but showing themselves very little, evidently finding plenty of food amongst the stems of the reeds and rushes.

Climatic conditions do not seem to affect them very much, but during very wet weather their song is not so frequent nor so vigorous, neither do they appear to be very happy themselves, but are rather more inclined to mope and are considerably less active.

Their food seems to consist entirely of insects, and during the few months they are with us food of this description is never lacking. They search for it chiefly low down amongst



MALE SWALLOW-TAILED WARBLER

ATTITUDE DURING COURTSHIP.

PUBLISHED BY R.H. PORTER.



## SEDGE-WARBLER

the roots of the herbage, often hopping on to and along the ground in swampy places, where small worms and spiders are abundant, and since they generally inhabit swampy places, swamp-loving insects form a great portion of their food. It is common to see the adults hunting the willows and small alders (*Alnus glutinosa*), but never the high trees. The young in July when fully grown are not so particular in this respect, often searching in the tops of large alders, especially during the swarming time of the aphides. It is no doubt the pursuit of food that leads the adults into the middle of cornfields, but I have not been able to determine what the special food they are following consists of.

Flies belonging to the *Chironomidæ*, of which I have identified the following, are frequently taken: *Chironomus viridis*, *Chironomus brevitibialis*, and *Tanypus choreus*.

These insects can be seen, especially in the morning, both early and late in the season, clustering under the leaves of the willows, hazels and alders. A slight tap on the branches will frequently produce incredible numbers, where before few could be seen.

In June and July they feed, amongst other insects, on the following:—

GENUS.	SPECIES.
<i>Homoptera</i> ...	<i>Cicadula septennotata</i> .
<i>Hemipteron</i> ...	<i>Macomma ambulans</i> .
<i>Coleoptera</i> ...	<i>Cyphon coarctatus</i> .
	<i>Dolichopus ungulatus</i> .
<i>Diptera</i> ...	$\begin{cases} \text{Tipulæ.} \\ \text{Limnobiidæ.} \\ \text{Empidæ.} \end{cases}$

The young, especially when still in the nest, are fed largely on these insects, occasionally also on the larvæ of certain moths and butterflies. During all the summer months great numbers of aphides are devoured, in fact, these insects appear to constitute the great food supply, not only of this species, but of many others also. A close inspection of the twigs and

BRITISH WARBLERS

leaves of the different species of *Salix* will reveal these insects clustering in great numbers, and will at once explain what, at a distance, looks like the aimless pecking at nothing of these birds.

When inhabiting swamps where the *Arundo phragmitis* grows, they seem to find, early in the season, a quantity of food amongst the fluffy seeds at the top of these reeds.

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FEMALE WILLOW WARBLER.











GRASSHOPPER WARBLER

## GRASSHOPPER-WARBLER.

**Sylvia locustella.**, Meyer, *British Birds*, folio Ed., vol. i. (coloured plate of bird and egg) [1835-43].

**Salicaria locustella.**, Hewitson, *British Oology*, 1st Ed., vol. i, plate 70, fig. 3 (egg) [1836]; *id.*, *Eggs of British Birds*, 2nd Ed., vol. i, pp. 85-86, pl. 25, fig. 1 (egg), 1846; *id. id.*, 3rd Ed., vol. i, pp. 112-114, pl. 31, fig. 1, 1856; Booth, *Rough Notes*, vol. ii, pp. 41-42, 1883.

**Sibilatrix locustella.**, Macgillivray, *British Birds*, vol. ii, pp. 399-404 (woodcut of head), 1839.

**Locustella avicula.**, Gould, *Birds of Great Britain*, vol. ii, 2 pp, pl. 78 (coloured figures of adult male and female), 1866.

**Acrocephalus nævius.**, Yarrell, *British Birds*, 4th Ed., vol. i, edited by Newton, pp. 384-388 (woodcut), 1873.

**Locustella nævia.**, Dresser, *Birds of Europe*, vol. ii, pp. 611-616, pl. 91 (coloured figures of adult male and young bird), 1874; Lilford, *Coloured Figures*, vol. iii, p. 44, pl. 22 (coloured figure of adult male), 1888; Saunders, *Manual of British Birds*, 2nd Ed., pp. 89-90 (woodcut), 1898.

**Locustella locustella.**, Seeböhm, *British Birds*, vol. i, pp. 340-345, pl. 10, fig. 19 (egg), 1883.

Croatian, *Trotanjara kobilicarka*; Czechisch, *Rákosnik zeleny*; Danish, *Busksanger*; Dutch, *de Sprinkhaan-Rietzanger*; French, *Bec-fin locustelle*; German, *Heuschrecken-Rohrsänger*; Hungarian, *Réti titcsökmadár*; Italian, *Forapaglie macchiettato*; Norwegian, *Græshoppe-Sanger*, *Busksanger*; Polish, *Trziniak swierszczyk*; Russian, *Swertschok*; Swedish, *Gräshoppsångare*.

### DESCRIPTION OF THE PLUMAGE.

**Adult Male in Spring.**—The upper parts are of a uniform darkish red olive brown, each feather having a blackish brown

centre, and this centre is most conspicuous on the crown and back, fainter on the long upper tail-coverts, and almost disappears on the back of the neck. The upper surface of the tail is of the same hue as the upper parts, but of a slightly darker brown, narrowly edged with lighter olive brown, and marked with faint transverse bars—the shaft of the feathers being dark reddish brown. The lores are olive grey, a superciliary streak, which disappears behind the eye, is a whitish olive yellow; cheeks and ear-coverts are darkish olive brown, with very indistinct light shaft stripes, and the side of the neck is the same colour as the upper parts but slightly lighter and unspotted. The wing-feathers are the same colour as the upper surface of the tail, broadly margined with the same colour as the back, and slightly reddish at the root of the outer primaries, forming an indistinct patch, but disappearing at the tip of the primaries and inner web of the secondaries. The throat is whitish buff, crop region buffish olive yellow, centre of breast and abdomen whitish, blending into whitish buff on the long under tail-coverts, the latter being furnished with a dark centre, which, however, does not reach to the tip of the feathers. The under surface of the tail is brownish grey, suffused with lavender grey. The sides of the breast and body are of the same colour as the back, but rather lighter and unspotted, though at the roots of the tail the feathers have dark but not very conspicuous centres.

**Adult Male in Summer.**—The upper parts are of an olive greyish green, very slightly tinged with yellowish umber, each feather having a dark brown centre, most conspicuous on the crown and back, but more indistinct on the nape and upper tail-coverts. The upper part of the tail is uniform, the olive umber being stronger, and the shafts a lavender brown. The wings are a dark greyish brown, but the broad margins of olive greyish green make the closed wing look almost uniform in colour; the first and second primary each have a whitish brown edge. There is an indistinct whitish ochre superciliary stripe disappearing behind the eye. The lores are greyish, sides of





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the head and neck olive greyish green. The under parts vary, the throat being generally whitish and spotted, or unspotted; the crop varies from light buff to deep olive buff. The middle of the abdomen is whitish, often washed with light buff. The flanks are of a stronger olive brown; the under tail-coverts vary from light buff to light olive brown, with dark brownish arrow-headed spots. Under parts of the tail-feathers are brownish lavender grey with indistinct crossbars and whitish shafts to the feathers. The upper mandible is dark brown, the lower horn green, lighter towards the tip; iris dark brown; legs fairly light brownish flesh, the soles having a wash of olive yellow.

**Adult Female in Spring.**—The upper parts are of a uniform lightish olive umber slightly washed with a rusty colour. The marking on the back and shoulders is the same as in the male and well pronounced, the dark centres to the feathers forming on the crown about six narrow stripes, which, though plain, are not very conspicuous. The back of the neck is unspotted and the dark centres are very inconspicuous on the rump and upper tail-coverts, whereas the transverse bars on the tail-feathers are easily seen. The wing is brownish black on the innermost secondaries, with a fairly broad edge of the same colour on the upper parts, though more rusty. The outer edge of the first large primary is whitish buff. The lores are dusky, and there is an indistinct superciliary stripe. The feathers on the eyelid are whitish buff, throat whitish, sides of the head, neck and body rich gamboge olive, darkening towards the tail, with faint dark centres to each feather, and blending into whitish on the centre of the abdomen. The crop is fawn colour, with small brown spots, and suffused with a beautiful vinous tint. The under tail-coverts are whitish buff with dark brown centres, both colours well pronounced. The under part of the tail is brown, washed with a faint lavender grey.

**Fledglings.**—The upper parts are very much like the adults, only slightly richer in tint and distinctly olive rust

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colour—not olive grey. There is a distinct, though not prominent, yellowish superciliary stripe, which soon disappears behind the eye. The ear-coverts are light olive ochre, the sides of the head and neck whitish, washed with olive yellow, and the throat whitish. The colour of the under parts varies considerably in different specimens, probably due to sex. In the one case the general colour is whitish, the crop, which is furnished with small brown spots, is washed with light olive brown, the same colour extending down the flanks, and the under tail-coverts olive buff, marked boldly with brown longitudinal spots; in the other the colour is whitish, washed with light olive buff, giving a rich tone which extends down the flanks: the crop is unspotted.

The under tail-coverts are almost light buff, inconspicuously marked with brown longitudinal spots. The tail-feathers are brown, slightly lighter towards the tip, the under surface with lavender. There is no downy plumage in the young.

The plumage of both sexes is in many ways interesting, since it shows considerable variation. The spots on the throat are not confined to any one age or sex. The majority of the males are similar to the one described first, but vary considerably in intensity of colouring, an absence of spots and a general richness of tone being apparently complementary to one another. Between those that are heavily spotted and those that have the feathers perfectly clear the intermediate grades are numerous. The second one described simply marks a stage in the deterioration of the plumage which commences directly coition has taken place and continues up to the moult. The female described appears to be the more uncommon form, and I have only seen one other female that had this peculiarly rich colouring, and hitherto I have seen no male that could compare with it. The plumage of the young is also interesting, since an absence of spots in their case appears to be equivalent to a different tone of colouring. Whether all the members of a brood develop

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the same colouring, or whether the variations are sexual or sporadic, further investigation can alone show.

#### GEOGRAPHICAL DISTRIBUTION.

Owing to certain peculiar characteristics of this species, naturalists acquainted with its habits are comparatively few, and consequently our knowledge of its distribution is incomplete. We may, therefore, find that certain features in this distribution, which at the present time appear to us anomalous, may, as our knowledge increases, be partly or possibly wholly explained.

**Great Britain** is apparently one of the principal breeding grounds, although over the whole area it can only be described as locally distributed. We find it rare in Cornwall, but in the remainder of the southern counties, including Devon, a regular but local visitor. Further north it appears to be more common, and in parts of Oxfordshire, Cambridgeshire, Gloucestershire, Worcestershire, Shropshire, Yorkshire, Cumberland, Durham and Northumberland it is numerous.

The greater part of **Wales** is unsuited to its habits, consequently it is very local; I have, however, frequently heard it in Anglesey. Proceeding north, over the border, we find it gradually becoming scarce; south of an imaginary line drawn from the mouth of the River Clyde to the Firth of Forth locally distributed, but north of this line rare, and we lose sight of it at Arisaig on the mainland and in the north-west of Skye. In the Orkneys, Shetlands and Western Isles there is no record of its occurrence. Westward we find it occurring in the Isle of Man, and then we come to a large breeding ground in Ireland, where it is generally distributed, but especially numerous in the counties of Antrim, Dublin, Wexford and Waterford.

The task of forming a systematic distribution outside the British Isles is by no means an easy one, and the difficulties face us directly we cross the Channel.

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Commencing with **Morocco** and **Algeria**, probably its most southern breeding range, we find it sparingly distributed. In **Spain** we find it occurring in Granada, Malaga, Murcia, Valencia, and common in the marshes of Santander, also wintering in the more southern provinces. The records from **Portugal** are very scarce, and the bird apparently only visits the country occasionally: it has been seen near Coimbra.

Crossing the **Pyrenees**, we find it more generally distributed and in parts of France common, for instance, in the provinces of Finistère, Cotes-du-Nord and Morbihan, also along the banks of the River Var and in Savoie.

**Belgium** is only rarely visited; it has been found in the province of Namur. The same applies to **Holland** to some extent, but here, perhaps, it is rather more frequent in its visits and breeds near Haarlem and Cromvoirt: I found no trace of it in Texel.

Continuing northwards, we find it occurring on migration in **Heligoland**. The records, however, become very scanty as we still continue north. In Holstein it is common, but rare in Schleswig. It has been obtained on the Island of Alsen. In **Denmark** it has apparently only been found during the autumn migration, specimens having been killed at a lighthouse on the coast of North-west Jutland, at a lightship in the North Kattegat and on the Island of Anholt. In **Sweden** it has not hitherto been found, but reappears as a breeding species, though rarely, in the southern parts of **Norway**, confining itself principally to the Jäderen, Christiania and Dröbak districts.

In **Germany** it is generally distributed. Working from west to east, we find it rare in Hanover, occurring on the River Marke, and not rare in Baden. The districts near the Elbe and its tributaries are apparently the most frequented, especially in Anhalt, Brandenburg, Mecklenburg, near Rostock and Parchim, and Altenburg. We find it again in Hessen, and as might be expected, it is partial to the Danube and its tributaries near Augsburg, Lauingen and Munich, and is not uncommon in Silesia.

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It visits parts of **Switzerland**, breeding regularly in the low regions of the basin of the River Aar and the River Thur, in the districts near Geneva, and in the valleys of Hasli and Ursern. On migration it is found as high as the Alpine regions.

**Italy** is little frequented, and the bird appears to confine itself principally to the north-western districts, where it is found in Lombardy, in the Brembana Valley, Piedmont, Liguria, the neighbourhood of Nizza, and Modena. Little is known of it in Central and Southern Italy, but it has been found near Florence in September. From Corsica, Sardinia, Sicily, Greece, and the Balkan provinces there are no records.

In the **Austro-Hungarian Monarchy** it is not common, principally inhabiting the Hansag swamp, and localities in Pozsony, Feher, Also-Feher and Hunyad. As we get further east, towards Galicia, it again becomes common, and leaving Austria, we come to what is apparently its largest breeding ground—the **Russian Empire**.

Commencing with Poland, we find it common, especially in Lublin, then proceeding north, not rare in the Baltic provinces, the provinces of Pskov and St. Petersburg; still further north we trace it to the south-east of Lake Onega and Ustiug Weliki in the province of Vologda. It is more numerous and generally distributed in the central provinces of Jaroslav, where it breeds on the islands of the Volga and near Rostov, Tver, Moscow, Smolensk, and Tula, also in the district lying between the Rivers Volga and Oka, but from the middle Volga valley there are no records. In the more southern parts it is found in the provinces of Kiev, Volhynia, Tchernigov, also along the banks of the Rivers Bug and Dnieper. In the Ural district it is commonly distributed round Bogoslovsk, the tributaries of the River Sosva, and in the province of Perm; it is also found in the Orenburg district at the base of the south-west Ural Mountains, in the plains of the Rivers Sakmara and Ilek, and in the middle valley of the River Ural. In the Caucasus it is common in

the vicinity of Stavropol and the northern slopes, but there are no records from Trans-Caucasia. Crossing the Caspian Sea, we find it occurring in the Mangishlak Peninsula, breeding along the west of the delta of Sir Daria, and in Western Thian-Shan, visiting Iskandar Kul and the Northern Pamirs; and still continuing east, we find it on Lake Ala Kul, and finally lose sight of it on the southern slopes of the Altai Mountains. There is much to be learnt about the southern range; at present it has not been found in Egypt or Tunisia, but in winter it visits **Morocco** and **Algeria**.

Now it must be evident to any one who follows these details, and at the same time bears in mind certain habits of this bird referred to in the text, that we have in these habits a possible explanation of some of the facts which are otherwise somewhat inexplicable. Since, therefore, it is probable that at some future date a more intimate acquaintance with these habits will influence and expand our ultimate knowledge of the distribution, and in order that the relation they may bear to the present incomplete state of this knowledge may be fully realised, I propose to briefly allude to them again.

A partial and in many places almost complete cessation of the song after pairing has taken place until the young leave the nest.

A very erratic appearance in any one particular district from year to year.

Very skulking habits after eight o'clock in the morning until the evening and during incubation throughout practically the whole day.

In countries where the bird is seen in the spring and autumn migration, but is not supposed to breed, especially where the autumn migration is a comparatively early one, it is possible that an explanation may be found in the first of these habits, the bird being overlooked during the quiet period. But after due allowance is made for these habits, and the resultant unsatisfactory state of our knowledge, the geographical distribution remains an interesting one.

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It is difficult, for instance, to understand why in Italy and Hungary—countries affording natural features eminently suitable to its habits—the bird is scarce. The great plains of Hungary and the banks of the Danube always appear to me to be particularly adapted to it, yet I cannot believe that in a country where the natural life is studied with so great an interest the bird is overlooked. These remarks apply equally to the Netherlands, and to some extent Belgium.

The migration across Heligoland, where it occurs not infrequently in March, April, May, August, September and October, is completely at variance with the present knowledge of its distribution. According to Heinrich Gätke, the spring migration in Heligoland invariably proceeds from west to east; but in the case of this species, where? A glance at the map will show that we are here near  $55^{\circ}$  N. latitude, above which, until we reach  $25^{\circ}$  longitude, the bird can only be described as rare. Those individuals, therefore, that cross the island—and the evidence tends to show that their numbers are considerable—must, after leaving, turn southwards into Germany, or continuing east, use this as their route to the Baltic provinces and Central Russia. But the winter quarters, as far as we know, are in Morocco, Algeria and the South of Spain. Is it, then, conceivable that in order to reach its summer home it would traverse so great and unnecessary a distance? In the opinion of Heinrich Gätke, the majority of spring migrants from South Africa on their way to Siberia do not pass Heligoland, but go direct. It is probable, therefore, that there is much to be learnt concerning the northern breeding range.

#### LIFE-HISTORY.

Different species vary very considerably in character; some are lethargic and dull, others are the possessors of great nervous development, so that the study of some is more likely to lead to the solution of Nature's problems than the study of

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others. To that class in which the different faculties seem to be specially active belongs the present species, and for me there is in all their movements, in each action of the short life they yearly spend amongst us, a fascination difficult to account for, unless it be in part due to a growing appreciation of my ignorance of all that they have to teach me.

Arriving between April 17th and 23rd, they visit us in considerable numbers, yet in a very erratic manner, favouring one particular district one year and deserting it the next, neither are they the least influenced in this respect by climatic conditions; for instance, in the years 1897 and 1903 they were so plentiful that during the first few hours of daylight their favourite haunts appeared to be alive with them, yet these two years were respectively very hot and dry, and very wet and cold. In Worcestershire, where I have principally studied this bird, they arrive during the night, and commence to sing, uninfluenced by the weather, at day-break; and in the immediate neighbourhood of the spot they settle in they generally breed, although occasionally one appears to be a wanderer, singing in a hedge by the roadside, yet passing on before the next morning. If it were not for its song, which is penetrating and arrests attention, it would be a most difficult bird to find, for it is peculiarly skulking in its habits, especially after eight o'clock in the morning until about four in the afternoon. It spends the greater part of its time either on the ground in the dense undergrowth, creeping in low thick bushes a few feet high, or searching tall thick hazels and hedgerows for food ten or twelve feet from the ground, but never appears to frequent trees; and has at all times, even when unconscious of any human presence, a great aversion to showing itself in the open. During incubation, when the song partly ceases, these skulking habits are more marked, since both sexes go to considerable trouble to conceal themselves.

They choose for themselves different and very varied spots,



MALE GRASSHOPPER WARBLER

ATTITUDE DURING COURTSHIP

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#### GRASSHOPPER-WARBLER

but perhaps those most frequented are osier-beds, which a year or so previously have been cut down; small coppices with plenty of thick undergrowth; spaces in large woods where timber has lately been felled, and where consequently scrubby bushes and luxuriant vegetation abound; waste land covered with gorse; swampy, but not too wet, ground with an abundance of *Juncus effusus*; clover fields and thick hedge-rows either by the roadside or next to fields of corn; thick undergrowth of some description seems, however, to be a necessity.

On their arrival the males can easily be detected by their song—for applying the word “song” to the vocal efforts of my friends I must apologise, I know not what other word describes it—which when once heard can never be forgotten, and from which they have earned the name “Grasshopper”; yet when with bill wide open and body quivering they utter their monotonous “reel,” there is little resemblance to the insect. A more minute knowledge of their ways is required to enable one to appreciate whence the name originated. They are by no means difficult birds to approach, and with ordinary precaution it is possible to get concealed quite close to them, and to hear the low whisperings from which they take their name. Let us suppose for a moment we are concealed within a few yards of one of them. There, on a branch low down in some nut-bush, he sits wrapped in meditation; now he commences to sing, and the power thus expended is apparent from the vibration, which is becoming almost painful to the ears, when he stops, and in turn in the far distance we hear others answering, first on one side, then on another. But watch him closely; with throat still distended and bill slightly open, he turns his head from side to side, and the sounds from our imaginary birds in the distance coincide with the turning of his head; thus the truth dawns upon us. He is certainly a wonderful ventriloquist, and though perhaps not conscious of his powers, yet he is most deceptive, and I have often been puzzled when trying to locate his position,

especially when he will do nothing but whisper, for this ventriloquistic effect is not so marked when singing loudly. Until pairing has taken place the song is almost incessant, morning and evening, rare during the daytime, more frequent at night; afterwards, and until the young are able to take care of themselves, it almost ceases, until it becomes a mere apology of the song of the mating season, often reduced to a few crackling notes, heard on a hot afternoon or during the first hour or so of dawn. To this partial cessation of the song may possibly be traced the belief that in certain districts the birds do not stop to breed, but are only to be found on their way to their breeding quarters; yet it is characteristic of many of the warblers, but perhaps more marked in the one under consideration; and thus the theory of the male lightening the female's task of incubation by song becomes a fanciful one, having little foundation of fact to recommend it, and against it the weighty evidence of Nature who always strives for a more complete concealment of her children. Before the arrival of the females, the males during the first few hours of daylight are very fond of playing with one another; and although their games are not to us very interesting, yet considerable energy is expended on them by the birds themselves. One male darts off after another one, pursuing him with very rapid flight into some thick bush; here he chases him up and down and along the branches with tail outspread and wings extended and slowly flapping, his behaviour being exactly similar to that during courtship, occasionally making use of a very curious note, much like the scolding of the Garden Warbler (*Sylvia hortensis*) when its nest is approached; and this sound appears to be produced with considerable exertion.

On the arrival of the females, about April 27th, ten days or so after the males, the courtship is immediately commenced. No period in the life-history of the individuals of any species is so interesting to watch or so full of significance as this. Every nerve is strained to a degree which makes incidents in



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ATTITUDE DURING COURTSHIP.



their ordinary lives appear almost commonplace. Listening during these few days at daybreak to the song of the males, it is quite possible to tell whether any females have arrived during the night; at such times it is intermittent, but very vigorous while it lasts—a pause, then a short trill, a longer pause and a longer trill, and so on, according to the time the male is able to tear himself away from the attractions of the female. She, meanwhile, walks or runs—as a rule it is more of a sedate walk—amongst the dense under-growth, at times threading her way through the branches of some small bush, occasionally pecking, or pretending to peck, at something as she passes, with an air of complete indifference to the attractions of her lover, never even pausing to look behind. He, however, sometimes leaves her either to sing, or with quick darting flight to chase away another male, who, in his opinion, has approached too closely, or for a more lengthened period, possibly to annoy other males engaged in the same task as himself. But she is immediately aware of his desertion, and if too long away becomes impatient, stops her aimless wandering in the under-growth, flies to a low branch in some bush, assumes an air of anxiety, and commences to call vigorously till he returns, using as her call-note a single “*tic*,” sometimes the “*tic tic tac*.” The positions assumed by the male when following her—sometimes he walks, sometimes runs along the branches or on the ground—are very beautiful. The tail is spread out and either raised or lowered, the wings fully extended and slowly flapping up and down, the feathers on the back and head are raised, those on the body thrown out, and the throat distended. The effect as he walks along some horizontal branch is very striking, and is enhanced by the curious habit, common amongst so many species, of carrying something in his bill, a piece of dead grass perhaps, but more frequently a dead leaf, and when two or three of the latter, stuck together, are picked up and carried for some distance the effect is striking and at first somewhat startling, giving one the impression

in the dim morning light of a stoat-like animal crawling along the branches. This habit, whatever the origin, seems now to be an indispensable part of the courtship and is very strongly implanted in the male; for, before following the female, the leaf or piece of grass is searched for with impatience, as the female does not stop but calmly pursues her way, the result being that whatever he first gets hold of, and can conveniently carry, is sufficient for his purpose.

In referring to this period of the bird's life, I have used the simple term "*courtship*," instead of the usual *display* followed by *selection*. Fascinated by a picturesque theory, I have, previous to this, attempted to interpret facts accordingly instead of being *ad utrumque paratus*, but closer study, devoted for some years to this courtship, convinces me that sexual selection as a rational explanation of the phenomena is impossible: the following reasons have been mainly instrumental in forcing this conclusion upon me.

Selection is impossible unless there are two or more males to be selected from.

I can find no evidence of this being a general rule in Nature, for although a second male occasionally approaches the zone of courtship and is consequently chased away by the first male, yet he is in no sense a rival, making no attempt to perform in the same extravagant manner; and if these two males were in competition for the female, and if such competition were to be decided solely by her choice, then, not only ought they both to display their plumage, but, unless the female is to be credited with sufficient mental power to enable her to carry, for her further consideration, the varying characteristics of each male in her mind, such display ought to take place simultaneously.

"If the male assumes these attitudes in order that the female may see him to the best advantage and thus be enabled to make her choice, then she ought to be watching him when thus occupied."

This is by no means the case, for she is generally walking,



KINGBIRD IN THE COURTSHIP.  
ATTITUDE DURING COURTSHIP.

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running, or flying away from her suitor—indeed, I cannot call to mind a single instance in which I have, even for a brief moment, seen the female looking at the male while assuming these positions—and therefore has her back turned to him when we ought to expect her to be examining the details of his plumage. It might be here argued that for the female to get the general effect of the male's display would, through such immense periods of time, be sufficient to account for the beauty of the plumage; but I cannot bring myself to believe, even if the other and more weighty objections could be removed, that such a casual inspection could be the means of developing minute and beautiful patterns, the very delicacy of which must surely cause us all to marvel. This, however, we know, that as a bird grows older the colours of the plumage become intensified, and even the plumage itself becomes finer in quality, and amongst the Warblers this difference is so marked as to at once arrest attention. He, then, who supports the principle of *selection* must admit that the older males being more richly coloured would be first selected; he must also admit that the offspring of these more successful males could inherit no advantage, *inasmuch* as the success of their parents was due solely to laws of continuous growth.

“Early in July a courtship, similar in every respect to the one in spring, occurs amongst the Sedge-Warblers.”

Admitting the principle of *selection*, we must *nolens volens* assume this to be a selection taking place before the second brood, conclusively proving the choice of the female in the first instance to have been a mistake.

“The ultimate production of the most healthy and most beautiful offspring by the selection of certain males is, without a corresponding selection amongst the females, impossible, and of the existence of such selection in any form there is no evidence.”

Individuals of both sexes vary very considerably both in intensity of colouring and actual quality of plumage. As an

instance, the females of the present species are occasionally as rich in colouring as the finest males. Here, then, the impotency of *sexual selection* becomes apparent, for unless the females that choose the more beautiful males are themselves the more beautiful of the females, they will neutralise the effect of their own selection.

Although this is a truism which appears to me to be difficult to controvert, yet I must admit that we are here confronted with two difficulties, one an incomplete knowledge of the laws relating to heredity, the other an ignorance of the influence exerted by the female upon her embryo, which is profound. We do not even know whether heredity and this influence are distinct, or inseparable, merging into one another by very gradual stages. Yet this influence is a potent factor in all life, including man.<sup>1</sup>

Little importance need, however, be attached to these difficulties here, since they depend upon the supposition that characters acquired by one sex can be transmitted to that sex only. For instance, if the dull-coloured female Grasshopper-Warblers in a given area were to pair with the bright-coloured males, and the bright-coloured females with the dull-coloured males, the result in time would not be the continuation of these same conditions, but the gradual annihilation of the bright or the dull colours. It is inconceivable and contrary to the facts in Nature to suppose that the colouring of the female offspring could be in no degree influenced by the male parent, and *vice versa*.

It has been suggested that the more vigorous females would be the first to breed, but this is a supposition made only to escape a difficulty, evidence in support of it being completely lacking: and since these same females vary individually very considerably in their colouring, we should at once, providing evidence were forthcoming in proof of

<sup>1</sup> It is indeed difficult to understand the callousness with which this knowledge is treated in human life at the present day.



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ATTITUDE DURING COURTSHIP



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such a supposition, be led to assume that colour was solely dependent upon and inseparable from vigour; thus the necessity for calling in such remote possibilities as æsthetic sense and selection in explanation of the phenomenon would be removed.

Let us compare the courtship of the famous Argus Pheasant with that of any of the dull-coloured Warblers, for instance, Savi's Warbler (*Locustella lusciniooides*). Here we have two cases, extreme as regards development of colour and shading, yet analogous in all other respects. The Argus Pheasant, when in presence of the female, spreads out and raises its tail and wings, the ocelli on the latter being thereby fully displayed; Savi's Warbler also under similar circumstances spreads out his tail and wings, the latter being very slowly waved up and down. These actions are identical, and evidently spring from the same cause, but no one can say that Savi's Warbler, in thus performing, has any special beauty to display. If, then, we say that the Argus Pheasant is conscious of the ocelli, of what is Savi's Warbler conscious? Clearly we are no more justified in imputing consciousness to the actions in the one case any more than we are in those of the other.

The courtship of birds presents many curious features; none more so than the spreading out of the wings and tail, commonly known as display, but these actions are not confined solely to courtship.

I have described the males of the species under consideration, both when playing with one another prior to the arrival of the females, and when feeding their fully fledged young, as behaving in an exactly similar manner. The male Chiff-chaff, before the arrival of the female sometimes seems to be seized with a sudden ecstasy. He spreads his tail and jerks his wings, singing to himself quickly and quietly; also when a hawk approaches his breeding-quarters too closely he will fly into the air, slowly flapping his wings, and hurriedly singing in a similar manner to his courtship. I will give one other

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instance: The male Blackcaps, when excited with one another, or with another species, such as *Sylvia hortensis*, assume the same positions as when courting the females. To what do these facts point? Certainly not to a conscious display.

Further evidence, details of which I need not enter into here, prove that all these actions are intimately associated with the development and stimulation of the sexual organs.

When we come to consider all these facts, when, on the one hand, we find evidence of so strong a character opposed to the theory of *sexual selection*, and on the other, find that actions similar in every respect are frequently performed at other periods of great excitement in a bird's life, can we doubt the probability of their being solely reflex in kind?<sup>1</sup> I think not. All the difficulties would thus be removed, the second courtship of the Sedge-Warbler—a courtship which, although I have not hitherto seen it, yet in my opinion undoubtedly occurs amongst other species—is explained; and there would only remain the general argument, namely, that it is impossible to believe that all the trouble which many species apparently take with their courtship is purposeless: and this argument may be raised against the theory of reflex action; but because I exclude conscious choice from being in any way directly responsible for these actions, I by no means wish to imply that they are purposeless, neither am I prepared to enter into further explanation here, for I hold that with the very meagre knowledge that we, even at the present day, possess of all the facts relating to this most interesting subject, it would be unwise to attempt to formulate a theory in explanation of their ultimate purpose.

The peculiar manner in which these birds walk along

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<sup>1</sup>In his "Last Words on Evolution," Professor Ernst Haeckel considers "sexual selection" of the greatest importance, both for the general theory of evolution and also for psychology, anthropology, and æsthetics. Since the importance of it is so great, no labour, surely, ought to have been spared to have verified the completeness of the fundamental evidence upon which it was originally based?





horizontal branches of very small dimensions is really very graceful ; one wonders how they keep their balance and yet preserve such a very aristocratic appearance. Climbing in this way up some bush—crawling, perhaps, is a better description—their whole appearance is peculiarly mouse-like, especially as wood-mice are themselves very fond of climbing up and sitting in small bushes, such as hazel, elder, &c.

The nest, composed principally of dried grass interwoven with dead leaves and bracken, is, even when the young are hatched, most difficult to find. Placed sometimes almost on the ground, sometimes a few feet above it, it may be found in very different situations, such as in the centre of a clump of *Juncus effusus*, underneath a thick mass of the same rush overhanging a small watercourse, in the middle of clumps of long dead grass, and low down in thick gorse bushes. During incubation, which lasts about sixteen days, the female seldom leaves the nest. I once, in June, saw a pair playing with one another as it was getting light, between two and three o'clock in the morning ; they were chasing one another, and the female settled and rested awhile on a branch quite close to me. When disturbed on her nest she will slip off quietly on to the ground and be quickly concealed, but if not too much alarmed will return, threading her way through the grass in the same stealthy manner. If lucky enough to find a nest with young, watch closely the parent birds ; time thus spent will by no means be wasted. One nest, I remember, placed low down in a gorse bush, and in a great measure hidden by long grass, gave me an exceptional opportunity of doing this. The locality I found by luck, for, when walking close by, one of the parent birds was disturbed and flew out, but it was only with considerable difficulty that I found the actual nest. Crawling under the gorse and lying flat was useless, as one or other of the birds would walk within a few feet of my face and stare ; to stand up seemed hopeless, but nevertheless it ultimately succeeded, and while I was remaining perfectly still, patiently enduring torments caused

by insects, one of them, with a billful of food, went to the nest within a few feet of me. Upon my taking up the same position at daylight, the birds, losing a great deal of their fear, continued with the care of their young. In going to or leaving their nest they always ran, and so much do they resemble mice that I was once completely taken in, believing that what I saw was in reality a mouse. One of the parent birds once raised its wings in a threatening attitude, but this was the only occasion on which they showed any sign of objection to my presence. A note was frequently uttered by both sexes, but it seemed to me to be only a call-note to the young, probably to keep them quiet: the male sang at intervals very quietly, and the young, when being fed, uttered tiny squeaks.

When feeding the young they bring billfuls of insects, or to be more accurate, lumps of squashed insects, and by examining these lumps it is possible to find out what their food consists of. Wait until one approaches you on the way to the nest, then make a sudden movement or a step forward, and the food will in most cases be dropped. Their dexterity in collecting the insects is marvellous; even when their bill appears to be full they still continue darting at an aphis here and a gnat there, adding them to the lump, yet never dropping any of that already gathered, so quick are their movements.

The young leave the nest when only a few days old, and until able to fly are most difficult to find, concealed as they are in the dense undergrowth; but in the study of Nature it may with considerable truth be said that "all things come to him who waits." Having ascertained the position of a nest from which the young have only lately gone, go there soon after sunrise and get well hidden. You will hear the hum of insects commencing and gaining in strength, as in response to the intensifying rays of the sun each one begins his daily toil; you will hear an insect with a very small far-away squeak, which for a time will puzzle you, but since



GOLDEN-THROATED WARBLER

PLATE VI.



#### GRASSHOPPER-WARBLER

it continues at frequent intervals to attract your attention it will make you wonder whether it may not after all be something more than an insect, and your suspicion is well founded. It was, indeed, some time before it dawned upon me that the owner of the voice might be a young Grasshopper-Warbler, for no tinier sound could come from the throat of any bird out of the nest. And now how to find him? Often have I searched in vain; in gorse it is well-nigh hopeless and best avoided, in osier-beds and waste swampy ground patience only is required to crown one's efforts with success.

Crawling amongst the long tangled undergrowth into the middle of hazel bushes, where the foliage is so dense that light can scarcely penetrate, I attempt to follow the sound. Each time on hearing the squeak I crawl a little closer until quite certain that the little bird is within a few inches of my face, but quite uncertain whether to the right or left or straight in front of me; still, by waiting, and with head inclined first one way then another, noting the direction the sound appears to come from, I make up my mind as to the exact spot, divide the undergrowth with the greatest care, and am amazed to hear the squeak come from exactly behind me. If this is not ventriloquism I know not what else to call it; it is an even more effective deception than the adult birds are capable of. At this age the young have very few feathers, and their naturally long legs give them a rather clumsy appearance; but in reality they are capable of running quite fast, and to this fact, until an opportunity occurred of studying them more closely, I was inclined to partly attribute their ventriloquism; for when unconscious of being watched, they stand huddled up on the ground, their heads drawn close into their bodies, wings drooping, feathers loose and eyes half closed, and off and on they raise their heads for a moment, open their beaks and utter their little squeak, turning their head in expectation of food first one way then another, apparently unconscious of the ventriloquistic effect produced. The parent birds sometimes show very little solicitude for

their offspring, even under the most trying circumstances; for when I have been sitting with a young one on my hand they silently came and peeped through the branches, disappeared for a moment, and looked again from the opposite direction, but made no sound, neither did they attempt in any way to entice me away. At other times when, attracted by the call, I have attempted to find the young, the female has shown considerable anxiety. She would utter a note which was a peremptory signal for the young to keep quiet, neither would any one of them, although scattered and a considerable distance apart, call again until she gave another signal; waiting for which signal considerable patience on my part was required, for the slightest movement would make her suspicious, hidden though she appeared to be, and when her suspicions were aroused she would immediately come up to the top of the gorse bush on which she was and watch my movements closely, nor were her suspicions allayed until I had kept quiet for a considerable time. She seems herself to do all the feeding of the young after they have left the nest, the males leading a lazy life, singing and playing with one another. One instance, and this a curious one, I have seen of the male feeding the young when almost full grown. It was in a large field of clover, and I could find no sign of the female at all. The young were scattered considerably, and at intervals between the feeding the male sat on a post and sang. When actually feeding one of the young he would spread out his tail and wings and slowly wave them up and down. The young, when able to fly a little, occasionally come out of their hiding, but if pursued and made to fly they very soon get tired, and if driven into an open piece of ground, where there is no cover for them to conceal themselves in, they become completely lost. This I have proved by manœuvring them on to patches of burnt gorse: here they would run aimlessly about and make no attempt to conceal themselves.

I have once seen, on June 17th, two of the adult birds

#### GRASSHOPPER-WARBLER

apparently on the point of pairing. The male was excitedly following the female, singing at intervals, and at times bowing slightly ; but this is the only evidence I have that two broods may be reared in the same season, while on the other hand the general behaviour of the males, when the young are fully fledged, is very different to this, for they sing for about a fortnight, that is to say, during the latter part of June and the beginning of July, then become restless and wander away from their breeding quarters. During these last days of June, if the weather is warm, their song can be heard to advantage in the evening and on through the night, rising and falling as the head is inclined first this way and then that. It is surprising how the song will penetrate, for it can be heard without difficulty a quarter of a mile away. It often happens, too, at this time of year, that the only other sounds in the night-time are the "*churring*" of the Nightjar, the craking of the Landrail, and the hissing of the young Brown Owls, sounds which are well in keeping and only tend to emphasise the stillness of the night.

Although their song is so peculiar, yet there are a few notes in the song of the Tree-Pipit and Wren for which they may easily be mistaken, and often when listening at day-break for these Warblers I have been completely deceived by these few notes, which, at a distance, with the remainder of the song lost, are barely distinguishable from those of the Wren or Tree-Pipit. The range of call-notes they use seems to be small ; the usual one is something like that of the Robin or Blackcap, a "*tic tac tac*," and this note seems to be used principally when alarmed. The note which the female uses to call the male, or to put the young at their ease, is usually a single "*tic*" ; on the other hand, this single "*tic*" quickly and loudly uttered may also be one of alarm ; it seems, therefore, that it depends more on the manner in which the note is given than on the actual note itself. There is no difference in the note of the two sexes.

Climatic conditions seem to influence them to a certain

extent. In very wet weather they mope, and when in this frame of mind it is possible to approach them very closely and watch the vigorous attempts they make to dry themselves. There is also at certain times towards the end of June a cessation of their song for a few days, which, owing to its curious spontaneity, must, I think, be due to changes of weather. In cold frosty springs I have never been lucky enough to find sufficient nests to enable me to form an opinion as to the effect of frost on the eggs, so disastrous to those of many species.

These birds are entirely insectivorous, aphides in particular forming a great part of their diet; wood-lice, spiders, small moths belonging to the family *Geometræ* are also taken; I have also seen the males in June feeding upon the larvæ of *Chimatobia brumata*.





SAVI'S WARBLER

GEOGRAPHICAL DISTRIBUTION DURING SUMMER.

BALTIMORE BY P. H. PORTER.

1871.



GRASSHOPPER-WARBLER

SAVI'S -WARBLER

GEOGRAPHICAL DISTRIBUTION DURING WINTER.

AND S. DANIELS ON PLATE 1371.

PUBLISHED BY R. H. FORSTER.









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